

CLAIMS

1. A picture encoding method that encodes picture information for each area by generating prediction pictures from picture information of frames that have been previously encoded, the method comprising:

a motion vector selection step that selects a motion vector from a plurality of motion vectors that have been stored in advance;

a prediction picture generation step that generates a prediction picture from a reference picture using the motion vector selected by the motion vector selection step; and

a differential encoding step that encodes a difference between the picture information of the present area and the prediction picture.

2. The picture encoding method as recited in claim 1, wherein the motion vector selection step selects the motion vector from the plurality of motion vectors in accordance with position information of areas within a screen.

3. The picture encoding method as recited in claim 1 or claim 2, further comprising a motion vector designation encoding step that encodes information that designates the motion vector selected by the motion vector selection step.

4. A picture encoding method that encodes picture information for each area by selecting a reference picture from picture information of a plurality of frames that have been previously encoded and generating a prediction picture, the method comprising:

a reference motion vector setting step that sets a correspondence relation between a plurality of motion vectors that have been stored in advance and reference picture designation information that designates a reference picture;

a reference picture selection step that selects the reference picture;

a reference picture designation encoding step that encodes the reference picture designation information that designates the reference picture;

a motion vector selection step that selects a motion vector corresponding to the reference picture designation information from the plurality of motion vectors that have been stored in advance;

a prediction picture generation step that generates a prediction picture from the reference picture using the motion vector selected by the motion vector selection step; and

a differential encoding step that encodes a difference between the picture information of the present area and the prediction picture.

5. The picture encoding method as recited in claim 1, claim 3, or claim 4, further comprising:

a motion detection step that detects a motion vector using the picture information of the present area and the reference picture;

a detected motion vector selection step that selects either of the motion vector selected by the motion vector selection step or the motion vector obtained in the motion detection step;

a detected motion vector encoding step that, when the motion vector obtained in the motion detection step is selected by the detected motion vector selection step, encodes the motion vector; and

a detected motion vector designation encoding step that encodes information designating the motion vector selected by the detected motion vector selection step.

6. The picture encoding method as recited in claim 1, claim 3, or claim 4, further comprising:

a motion detection step that detects a motion vector using the picture information of the present area and the reference picture; and

a differential motion vector encoding step that encodes the difference between the motion vector selected by the motion vector selection step and the motion vector obtained in the motion detection step.

7. The picture encoding method as recited in claim 5 or claim 6, further comprising:

a motion vector storage step that stores motion vectors;

a motion vector storage decision step that decides whether or not to store a motion vector; and

a motion vector storage designation encoding step that encodes information that designates whether or not to store a motion vector.

8. The picture encoding method as recited in claim 5 or claim 6, further comprising:
a motion vector storage step that stores motion vectors; and
a motion vector scaling step that changes the value of the motion vector using motion vector scaling information.
9. The picture encoding method as recited in claim 8, further comprising a scaling encoding step that encodes the motion vector scaling information.
10. A picture decoding method that decodes picture information for each area by generating prediction pictures from picture information of frames that have been previously decoded, the method comprising:
a motion vector selection step that selects a motion vector from a plurality of motion vectors that have been stored in advance;
a prediction picture generation step that generates a prediction picture from a reference picture using the motion vector selected by the motion vector selection step; and
a decoded picture generation step that generates a decoded picture by decoding a difference between the picture information of the present area and the prediction picture.
11. The picture decoding method as recited in claim 10, wherein the motion vector selection step selects the motion vector from the plurality of motion vectors in accordance with position information of areas within a screen.
12. The picture decoding method as recited in claim 10 or claim 11, further comprising a motion vector designation decoding step that decodes information that designates the motion vector selected by the motion vector selection step.
13. A picture decoding method that decodes picture information for each area by selecting a reference picture from picture information of a plurality of frames that have been previously decoded and generating a prediction picture, the method comprising:
a reference motion vector setting step that sets a correspondence relation between a plurality of motion vectors that have been stored in advance and reference picture

designation information that designates a reference picture;

a reference picture designation decoding step that decodes the reference picture designation information that designates the reference picture;

a reference picture selection step that selects the reference picture;

a motion vector selection step that selects a motion vector corresponding to the reference picture designation information from the plurality of motion vectors that have been stored in advance;

a prediction picture generation step that generates a prediction picture from the reference picture using the motion vector selected by the motion vector selection step; and

a decoded picture generation step that generates a decoded picture by decoding a difference between the picture information of the present area and the prediction picture.

14. The picture decoding method as recited in claim 10, claim 12, or claim 13, further comprising:

a detected motion vector designation decoding step that decodes information that designates whether or not the motion vector is encoded; and

a detected motion vector decoding step that decodes the motion vector in the case that the motion vector is encoded.

15. The picture decoding method as recited in claim 10, claim 12, or claim 13, further comprising:

a differential motion vector decoding step that decodes a differential motion vector; and

a differential motion vector computation step that computes the motion vector from the differential motion vector and the motion vector selected by the motion vector selection step.

16. The picture decoding method as recited in claim 14 or claim 15, further comprising:

a motion vector storage step that stores motion vectors; and

a motion vector storage designation decoding step that decodes information that designates whether or not to store a motion vector.

17. The picture decoding method as recited in claim 14 or claim 15, further comprising:

- a motion vector storage step that stores motion vectors; and
- a motion vector scaling step that changes the value of the motion vector using motion vector scaling information.

18. The picture decoding method as recited in claim 17, further comprising a scaling decoding step that decodes the motion vector scaling information.

19. A picture encoding apparatus that encodes picture information for each area by generating prediction pictures from picture information of frames that have been previously encoded, comprising:

- a motion vector selection section that selects a motion vector from a plurality of motion vectors that have been stored in advance;
- a prediction picture generation section that generates a prediction picture from a reference picture using the motion vector selected by the motion vector selection section; and
- a differential encoding section that encodes a difference between the picture information of the present area and the prediction picture.

20. A picture decoding apparatus that decodes picture information for each area by generating prediction pictures from picture information of frames that have been previously decoded, comprising:

- a motion vector selection section that selects a motion vector from a plurality of motion vectors that have been stored in advance;
- a prediction picture generation section that generates a prediction picture from a reference picture using the motion vector selected by the motion vector selection section; and
- a decoded picture generation section that generates a decoded picture by decoding a difference between the picture information of the present area and the prediction picture.

21. A picture encoding program for making a computer execute the picture encoding method recited in any one of claims 1 through 9.
22. A picture decoding program for making a computer execute the picture decoding method recited in any one of claims 10 through 18.